CO.04
NOVEL LYSSAVIRUS FROM A MINIOPTERUS SCHREIBERSII BAT IN SPAIN.

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In the frame of the Spanish Rabies Surveillance Program, a bat carcass was received on March 12th, 2012, in the Centro Nacional de Microbiología (National Center of Microbiology) (CNM). The bat was found in the city of Lleida, in July 2011, and it was taken to the Wildlife Care Center of Vallcalent (Lleida, Catalonia). The bat died soon after admission. Two different RT-PCR generic methods for the *Lyssavirus* genus (1,2) and two commercial rabies antisera for antigen detection were used for diagnosis. Brain smears were positive for both, FAT and RT-PCR, as well as the oropharingeal swab for RT-PCR. The bat was morphologically and molecularly identified as *Miniopterus schreibersii* (3). To determine the identity of the virus, a fragment of the nucleoprotein gene (N) was sequenced. Dataset representative of all *Lyssaviruses*, including the recently described IKOV, was used for the phylogenetic reconstruction. The topology obtained by Bayesian Inference (BI) showed a new virus related more to IKOV and WCBV than any other lyssavirus included in phylogroups I and II. These results suggest a new virus, named *Lleida bat lyssavirus* (LLEBV), taking in consideration the locality where the bat was found. In Europe, from 1977 to 2011, a total of 988 cases of bat rabies were reported; *Eptesicus serotinus* and *E. isabellinus* which account for more than 95% of the cases are considered the major natural reservoirs of EBLV-1. Several *Myotis* spp. are reservoirs for EBLV-2, BBLV, ARAV, and KHUV(4). In Spain, EBLV-1 has only been described in *E. isabellinus* (5). Interestingly, the lowest nucleotide identity shown by LLEBV was with EBLV-1. The LLEBV has been detected on *M. schreibersii* such as WCBV. *Miniopterus* genus presently belongs to the *Vespertilionidae* family as the other bat genera linked to lyssaviruses in Eurasia (*Eptesicus, Myotis* and *Murina*). However, recent molecular analyses have postulated the group as an independent monospecific *Miniopteridae* family (6). *M. schreibersii* is a migratory bat, widely distributed throughout Southern Europe and Eurasia. This bat specie gathers in caves in large numbers (thousands) for wintering, moving in spring to different and sometimes distant summer roosts for reproduction. Due to its migratory habits and typically large size of populations of this bat, it is quite probable that once an infectious agent is introduced, it may spread quickly within populations. The evolutionary relationships between the new LLEBV with WCBV and IKOV need to be clarified to determine whether they will form one or more phylogroups. Further analyses are in process to assess this question and to establish a probable potential role as a human pathogen. More studies must be done in order to evaluate ecological aspects of LLEBV circulation. Nidia Aréchiga Ceballos is post-doctoral fellow granted by the Consejo Nacional de Ciencia y Tecnología (CONACyT) Mexico. This research was financially supported by the project SAF 2009-09172 of the General Research Program of the Spanish Ministry of Science and Education. **References:** 1. Echevarría JE, *et al.* J Clin Microbiol.; 39: 3678-83. 2001. 2. Vázquez-Morón S, *et al.*, J Virol Methods. 135: 281-87. 2006. 3. Ibáñez C, *et al.*,Acta Chiropterol.; 8: 277–297. 2006. 4. Schatz J.*et al.*, Zoonoses Public Health. *In press*. 5. Vázquez-Morón S, *et al.*, Emerg Infect Dis.; 17(3): 520-23. 2011. 6. Hoofer, S. R y Van Der Bussche. Acta Chiropterol.. 5, supplement:1–63. 2003.

CO.05
HUMAN RABIES IN THE UNITED STATES: EVALUATION OF CLINICAL FINDINGS FROM 1960–2010

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Background: Clinical diagnosis of human rabies is challenging in the United States (U.S.) due to the rarity of human cases, non-specific symptoms, and infrequent attainment of a potential exposure history. The traditional presentations of rabies, furious and paralytic, are reported in regions of endemic canine rabies, but have not been systematically characterized among rabies cases in the U.S. This study aims to examine the clinical characteristics of patients in the U.S. that are associated with rabies to aid in diagnosis and surveillance. **Methods:** Patient data were extracted from an existing database associated with samples submitted for rabies diagnosis to the Poxvirus and Rabies Branch at the CDC. A de-identified dataset consisting of records for all patients diagnosed with rabies from 1960-2010 and patients ruled-out for rabies from 2007-2010 was provided. Patients with at least one symptom reported were included in analysis. Chi-square was used for tests of association. **Results:** Of the 252 patients in the dataset, clinical symptoms were reported for 246; 103 (41.9%) of 246 were diagnosed with rabies. Symptoms significantly associated with rabies ($p<0.01$) were localized pain or paresthesia (OR 10.4, 95% CI 5.6-19.1), hydrophobia (OR 9.9, 95% CI 4.3-22.2), dysphagia (OR 3.1, 95% CI 1.8-5.2), localized weakness (OR 2.9, 95% CI 1.7-5.1), and aerophobia (OR 15.3, 95% CI 1.9-121.3). The presence of agitation or a focal neurologic sign (dysphagia or localized pain, paresthesia, or weakness) had a combined specificity of 95% and a likelihood ratio of 1.8 for rabies. Symptoms significantly associated with patients for whom rabies was ruled-out by laboratory diagnosis included: confusion (OR 2.9, 95% CI 1.5-5.4), malaise (OR 3.3, 95% CI 1.9-5.6), seizure (OR 3.1, 95% CI 1.8-5.4) and headache (OR 4.1, 95% CI 2.4-8.8). **Conclusion:** Focal neurologic signs, hydrophobia, and aerophobia should be emphasized in the evaluation of patients for rabies and the submission of samples for laboratory diagnosis. These clinical associations may also be applied to a formal case definition to improve reporting of human rabies where laboratory diagnosis is limited. Ongoing analysis of clinical data from patients tested for rabies may be utilized to develop algorithms of signs and symptoms predictive of rabies diagnosis. **Topic:** Human Rabies or Epidemiology and Surveillance of Rabies **Honors and Financial Assistance:** Jennifer Bass performed this work as a fellow in the CDC Experience Applied Epidemiology Fellowship. Brett Petersen initiated this project as an officer in CDC's Epidemic Intelligence Service.

CO.06
CLINICAL FEATURES OF DOG- AND BAT-ACQUIRED RABIES IN HUMANS

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Clinical differences in rabies due to canine and bat rabies virus variants have been noted, but no detailed studies have been reported to support these observations. Using PubMed and the MMWR we identified 120 case reports of rabies from the USA, Canada, Europe, and Asia. We systematically abstracted selected clinical features, results of investigations, incubation times and durations of illness. Details about clinical features were recorded. Cases were classified as dog- or bat-acquired based on reported animal exposure or viral